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**UPDATE ON ENERGY CONSERVATION  
PROJECTS  
AT CITY & COUNTY OF HONOLULU**

*Honolulu Hale Cogeneration System*

*Kapolei Hale Air Conditioning System Improvements*

*Honolulu Municipal Building & Honolulu Police  
Department Headquarters ESPC*

**Rebuild Hawaii Quarterly Meeting  
July 19, 2005**

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# *Honolulu Hale Cogeneration System*

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Absorption Chiller & Cogenerator at Honolulu Hale

# Energy Analysis

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	A	B	C	D	E	F
1	Usage	kW/Month	kWh/Month	Therms/Mon.	Base Rate \$/Yr	2004 Rate \$/Yr
2	Year 2000 Baseline Usage	672	190,000		\$ 279,398	\$ 314,561
3	Year 2004 Escalated Baseline Usage	699	197,715		\$ 290,713	\$ 327,304
4	Year 2004 Electricity Usage	403	90,200		\$ 141,082	\$ 157,775
5	Year 2004 Gas Usage			3,609	\$ 37,637	\$ 68,029
6	Year 2004 Total Usage				\$ 178,719	\$ 225,804
7	2004 Annual Savings				\$ 111,994	\$ 101,500



# *Kapolei Hale Air Conditioning System Improvements*

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## *Project Summary*

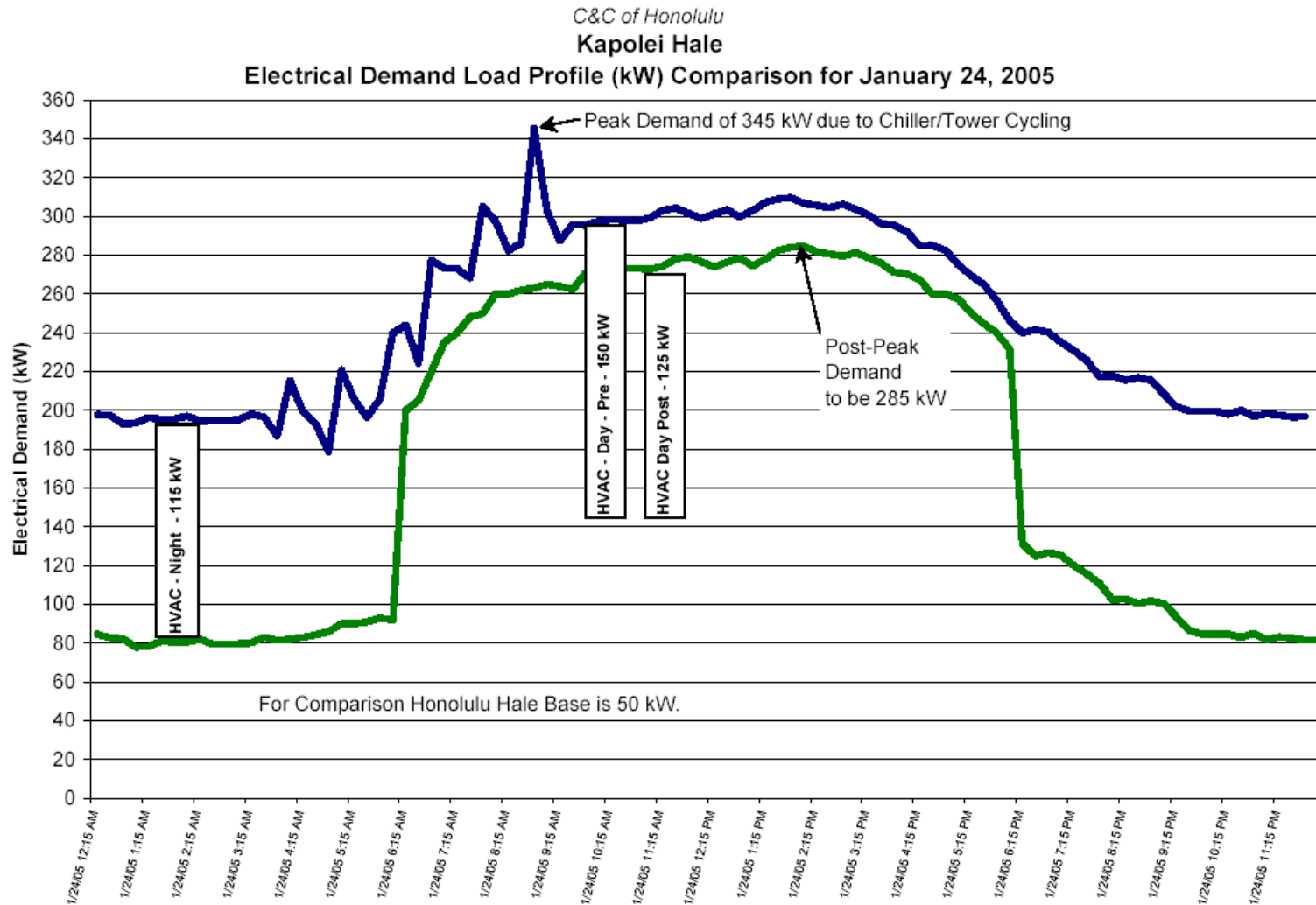
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**Financial:** \$ 250,000/yr. Electricity Cost    \$ 70,000/yr. Savings (28%)  
\$ 400,000 Construction Cost    5.7 years payback

### *Energy Conservation Measures:*

- Web Accessed Energy Management System
- Networked VAV Controls to provide greater comfort, operational diagnostic and individual scheduling ability.
- Air Handler tuning and discharge temperature setback. Provide individual AHU scheduling ability.
- High-Efficiency Retrofit of 210 ton Screw Chiller with two 80 ton compressor “Turbocor” retrofit kit. Provide lead-lag sequencing, demand limiting and chilled water temperature reset.
- VFD Retrofit of Induced Draft Cooling Towers
- Control Improvements and tuning of the Constant Primary/  
Variable-Speed pumping Secondary Chilled Water Loop

# Kapolei Hale Before & After Demand





# *Honolulu Municipal Building & Honolulu Police Department Headquarters ESPC*

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# *Facility Information*

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## Honolulu Municipal Building

~200,000 sq. ft.

1.45 MW Ave. Demand

7,640,400 kWh/year Usage

\$ 924,870 /year Electricity Cost

## HPD Headquarters

~264,000 sq. ft. Main Building

1.28 MW Ave. Demand

8,895,840 kWh/year Usage

\$ 1,016,530 /year Electricity Cost

## Project Goal

\$500,000 /year Savings (25%)



# *Desired Energy Conservation Measures*

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## Honolulu Municipal Building

- ◆ New chiller plant (original 30 years old)
- ◆ Upgrade VAVs and controls
- ◆ Optimize existing T-8 lighting and upgrade lighting controls
- ◆ Photovoltaic (PV) system on roof

## HPD Headquarters

- ◆ Install VFDs on existing chillers
- ◆ Upgrade VFDs on existing air handlers
- ◆ Upgrade VAVs and controls
- ◆ Install occupancy sensors and lighting controls
- ◆ Upgrade energy management and control system

## *Project Status*

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- ◆ **RFP issued on September 13, 2004**
- ◆ **Proposals received from Honeywell and Johnson Controls on December 28, 2004**
- ◆ **Currently evaluating proposals**
- ◆ **Contract by August 2005**